Vol. 63, pp. 139-146 December 29, 1950

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A NEW *HOPLOTHRIPS* FROM CUBA

(Thysanoptera, Phlæothripidæ)

By J. Douglas Hood

In the Thysanoptera, as in many other insects, the production of a winged form of the species often involves many changes beyond the mere addition of wings. Frequently the coloration and degree of sclerotization are different; always the wing-bearing thoracic segments have a different arrangement of sclerites; almost invariably the prothorax is smaller in long-winged forms; usually the ocelli and eyes are enlarged, and fully formed, though the former may have been wholly wanting in the wingless parents; and often, in thrips, the antennal sense-cones are very different in shape or number, those of the long-winged form tending to be longer, more curved, or more numerous. And this list of differences is far from complete.

When such "variations" are accompanied by deälation, by a progressive modification in color as the insect ages, by heterogony or disharmonic growth, and by other effects directly attributable to the action of the environment, we become faced with taxonomic problems whose satisfactory solution depends upon careful field work, difficult rearing experiments, and laborious study of long series of specimens collected under a variety of geographical, ecological, and seasonal conditions. This is the case with most tubuliferous Thysanoptera, including the species described below. From the safe distance lent perhaps by ignorance, the entomologist views with envy the apparently simpler taxonomic problems of other zoologists.

Hoplothrips bradleyi sp. nov.

Figs. 1 and 2

Female, forma macroptera.—Length about 1.1 mm. (distended, about 1.3 mm.). Color nearly uniform brown, with bright, crimson-red internal pigmentation, the tube abruptly bright yellow and narrowly tipped with gray; legs about concolorous with body, with trochanters nearly yellow, femora (especially the fore pair) narrowly yellow at apex, tibiæ (especially the fore pair) yellow or at least paler at base, tarsi perceptibly paler; fore wings pale grayish brown in about apical three-fifths, darkest marginally at tip and in basal portion of anal area, and with a short, narrow, dark vein before middle; antennæ with segment I yellow across base and apex, light brown between, II dull yellow, III dull yellow in about basal third, remainder of antennæ concolorous with body; major

setæ light brown, or yellowish brown, most of them with pale, dilated tips, those on segment IX of abdomen nearly yellow.

Head (Fig. 1) about as long as greatest width across cheeks, broadest near middle of latter, where the width is about 1.7 times the distance from eyes to posterior margin of head, the width across eyes approximately equal to the least width just in front of the slightly projecting basal collar; cheeks abruptly but roundly converging to eyes, subparallel or slightly convex in front of middle, slightly concave behind it; head not elevated along median line posteriorly, its dorsal surface nearly smooth, but with a few, faint, dark, anastomosing striæ at base (especially at sides), and with the cheeks very faintly serrate because of short, ventro-lateral striæ extending just onto dorsal surface, the vertex in front of posterior ocelli lightly reticulo-striate; vertex subconical, descending vertically beneath the overhanging median ocellus, with the usual pair of pores and the usual two pairs of minute setæ; postocular setæ dilated at tip, about 46μ long, 109μ apart, and 9μ from eyes; other cephalic setæ minute, slender, pointed, and pale, disposed as shown in Fig. 1. *Eyes* moderately large for the group, scarcely one-third the length of head, with a few enlarged facets posteriorly, in holotype with dorsal length 50μ, dorsal width 43μ, dorsal interval 46μ, ventral length 55μ, ventral width 44μ, and ventral interval 44μ. *Ocelli* 16-19μ in diameter, the median one (when head is horizontal) with its front margin nearly on a line with that of eyes, the posterior ones about 22μ apart and 16μ from median ocellus. *Antennæ* typical of the genus, segment VIII pedicellate and lanceolate; sense-cones rather large, that on inner surface of III about 23μ long, their disposition on inner (and outer) surfaces of segments as follows: III 1 (2), IV 2 (2), V 1 (1), VI 1 (1), VII 1 dorsally. *Mouth-cone* subconical, rounded at tip, extending about 86μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum about 0.56 that of head and contained in the trans-coxal width about 2.9 times, its dorsal sclerites not fused; pronotum smooth, excepting for a few striæ paralleling its sides between the antero-angular and midlateral setæ, and about two along the transverse posterior margin; median apodeme wanting; all usual major setæ present, all of them decidedly knobbed at tip, those of holotype measuring as follows in μ: antero-marginals 24, antero-angulars 32, midlaterals 30, epimerals 45, postero-marginals 45, coxals 37. *Pterothorax* somewhat broader than prothorax. *Wings* distinctly tapered apically, the fore pair without accessory fringing hairs on posterior margin, with the two (only) subbasal setæ knobbed at tip and respectively 31 and 40μ long. *Legs* normal to the species-group, the fore femora not enlarged, the fore tarsi not toothed.

Abdomen nearly 1.2 times as broad as prothorax across coxæ, its surface smooth excepting for the usual subbasal lines across terga II-VIII and the reticulo-striations on I and IX; I-IX with the usual pair of pores, those on II-VII with accompanying, minute, slender setæ behind them, those on VIII and IX with the setæ between. *Tube* nearly one-half the length of head, about 1.35 times as long as greatest subbasal width, and about twice as wide near base as at apex, its sides nearly straight, save for a slight concavity just behind the subbasal pores. *Major abdominal setæ* (excepting the wing-retaining ones, the lateral

pair on segment VIII, those on IX, and the terminal setæ) decidedly dilated at apex; setæ I and II on IX slightly enlarged apically and respectively 67 and 71μ long, all others mentioned parenthetically above, pointed, seta III on IX about 100μ, terminal setæ about 70μ. ,

Measurements of female (holotype) in mm.: Length about 1.12 (fully distended, 1.25); head, total length 0.144, width across eyes 0.132, greatest width across cheeks (near middle) 0.144, least width near base (in front of basal collar) 0.128, width across basal collar 0.129; prothorax, median length of pronotum 0.080, width (inclusive of coxæ) 0.231; pterothorax, width across anterior angles 0.238; abdomen, greatest width (at segment III) 0.274; tube (X, only), length 0.070, greatest subbasal width 0.052, least apical width 0.027.

Antennal segments:	1	2	3	4	5	6	7	8
Length (microns):	30	40	37	40	35	34	31	34
Width (microns):	27	26	27	28	24	21	20	14

Total length of antenna, 0.281 mm.

Female, forma aptera.—Size and color much as in the long-winged form described above. Head longer and more slender; eyes much smaller, especially ventrally; ocelli wanting; antennal segments III-VI each with *one* sense-cone on inner surface and *one* on outer; prothorax and abdomen broader, pronotum longer.

Measurements of female (morphotype), in mm.: Length about 1.06 (fully distended, 1.39); head, total length 0.150, width across eyes 0.111, greatest width across cheeks 0.136, least width near base 0.126, width across basal collar 0.127; eyes, dorsal length 0.040, dorsal width 0.025, dorsal interval 0.060, ventral length 0.017, ventral width 0.022, ventral interval 0.066; postocular setæ, length 0.049, interval 0.095, distance from eyes 0.016; mouth-cone, length beyond posterior dorsal margin of head 0.080; prothorax, median length of pronotum 0.102, width (inclusive of coxæ) 0.265; prothoracic setæ: length of antero-marginals 0.025, antero-angulars 0.029, midlaterals 0.027, epimerals 0.047, postero-marginals 0.048, coxals 0.035; pterothorax, width across anterior angles 0.249; abdomen, greatest width (at segment III) 0.318; tube (X, only), length 0.073, greatest subbasal width 0.057, least apical width 0.027; seta I on IX 0.067, II 0.067, 111 0.091; terminal setæ 0.070.

Antennal segments:	1	2	3	4	5	6	7	8
Length (microns):	30	40	36	34	36	36	33	36
Width (microns):	31	27	26	29	26	22	20	15

Total length of antenna, 0.281 mm.

Male, forma aptera.—Length 0.8-1.0 mm. (fully distended, 1.0-1.26 mm.). Color nearly as described for long-winged form of female, differing principally in that segments I and II of antennæ are both dull yellow, with I lightly washed with brownish, and segment IX of the abdomen is much paler than VIII and yellow, or nearly so, apically; in large individuals the head is distinctly paler and more yellowish between and in front of the eyes.

Head variable in form, sculpture, and in the degree of development of the tooth-like projection shown at the anterior end of the cheeks in Fig. 2; in small individuals this tooth is wholly wanting, the head is

about 1.2 times as long as its greatest width near middle of cheeks, and the cheeks themselves are very sparsely and minutely tuberculate, while in large individuals, like the one figured, the tooth is large, the head as much as 1.6 times as long as its greatest width near middle of cheeks, and the cheeks quite closely and roughly tuberculate; sense-cones as in apterous females; ocelli wanting. *Prothorax* equally variable in form; median apodeme short and weak in small specimens, long and heavy in large ones; major setæ about as in females, excepting that the antero-marginals are minute (about 3μ) and pointed; fore legs with femora and tarsal tooth greatly enlarged in large individuals, the femora and tbiæ not toothed in even the largest known specimens.

Measurements of a large male (the allotype), in comparison with those of a small paratype, those of latter in parentheses: Length about 1.00 (0.81), fully distended 1.26 (1.00); head, total length 0.176 (0.134), width across eyes 0.107 (0.097), greatest width across cheeks near middle 0.110 (0.109), least width near base 0.107 (0.100), width across basal collar 0.109 (0.102); eyes, dorsal length 0.036 (0.035), dorsal width 0.029 (0.022), dorsal interval 0.050 (0.053), ventral length 0.037 (0.018), ventral width 0.027 (0.020), ventral interval 0.053 (0.057); postosular setæ, length 0.048 (0.033), interval 0.081 (0.084), distance from eyes 0.020 (0.010); mouth-cone, length beyond posterior dorsal margin of head 0.087 (0.060); prothorax, median length of pronotum 0.180 (0.102), greatest width (inclusive of coxæ) 0.297 (0.214); antero-marginal setæ, length 0.003 (0.003), antero-angulars 0.031 (0.026), mid-laterals 0.024 (0.022), epimerals 0.033 (0.030), postero-marginals 0.044 (0.044), coxals 0.039 (0.031); pterothorax, width across anterior angles, 0.262 (0.200); abdomen, greatest width (at segment II) 0.260 (0.209); tube (X, only), length 0.067, greatest subbasal width 0.052, least apical width 0.026; seta I on segment IX 0.056, II 0.037, III 0.098; terminal setæ 0.083.

Antennal segments:	1	2	3	4	5	6	7	8	
Length (microns):	35	41	40	40	40	37	33	37	—allotype
	28	36	32	31	31	31	28	34	—paratype
Width (microns):	33	27	27	27	25	21	20	14	—allotype
	27	24	24	24	23	21	19	13	—paratype

Total length of antenna, 0.303 (0.251) mm.

CUBA: San Miguel de los Baños, Matanzas, July 18, 1940, Dr. J. Chester Bradley, 2 macropterous ♀'s, 6 apterous females, 14 apterous ♂'s, from dead branches.

PANAMA: Porto Bello, July 9, 1933, J. D. Hood, 1 ♂, from dead branches [986].

The affinities of this little species, which I have named after my good friend Dr. Bradley, are with *tyrannus, aciculatus, flavicauda,* and possibly *fungosus.* The first two of these differ conspicuously in that the submedian pair of pores on abdominal terga II-VII have been replaced by a pair of minute setæ; and the last one, *fungosus,* described from Formosa, though it agrees with *bradleyi* in the character of the pores just mentioned, differs sharply in having the antennæ bright yellow in at least the basal portions of segments I-V. The remaining species, *flavicauda,* widely distributed in Southern and Eastern United States, is

without doubt the closest relative of *bradleyi;* but the two are readily separable in both forms of the female sex by the smaller and pointed (instead of knobbed) antero-marginal setæ of *flavicauda* and, in addition, in macropterous females, by the ratio between the greatest width of the head to the distance of the eyes from the base of the head, the figure being 1.5 for *flavicauda* and 1.7 for *bradleyi.*

The males of the two species are very much alike and exhibit a heterogonic range greater than I have seen in any other species. But large males of *flavicauda*—those with elongated, toothed heads and greatly enlarged fore legs—always have two or three triangular teeth on the inner surface of the fore femora, near their tip, and a similar fore tibial tooth, while *bradleyi* has no trace of such structures in any of the material studied. (Compare the figure given by me in Insecutor Inscitiae Menstruus, 2(2):19, Pl. 1, fig. 4, 1914, with Fig. 2 of the present paper.)

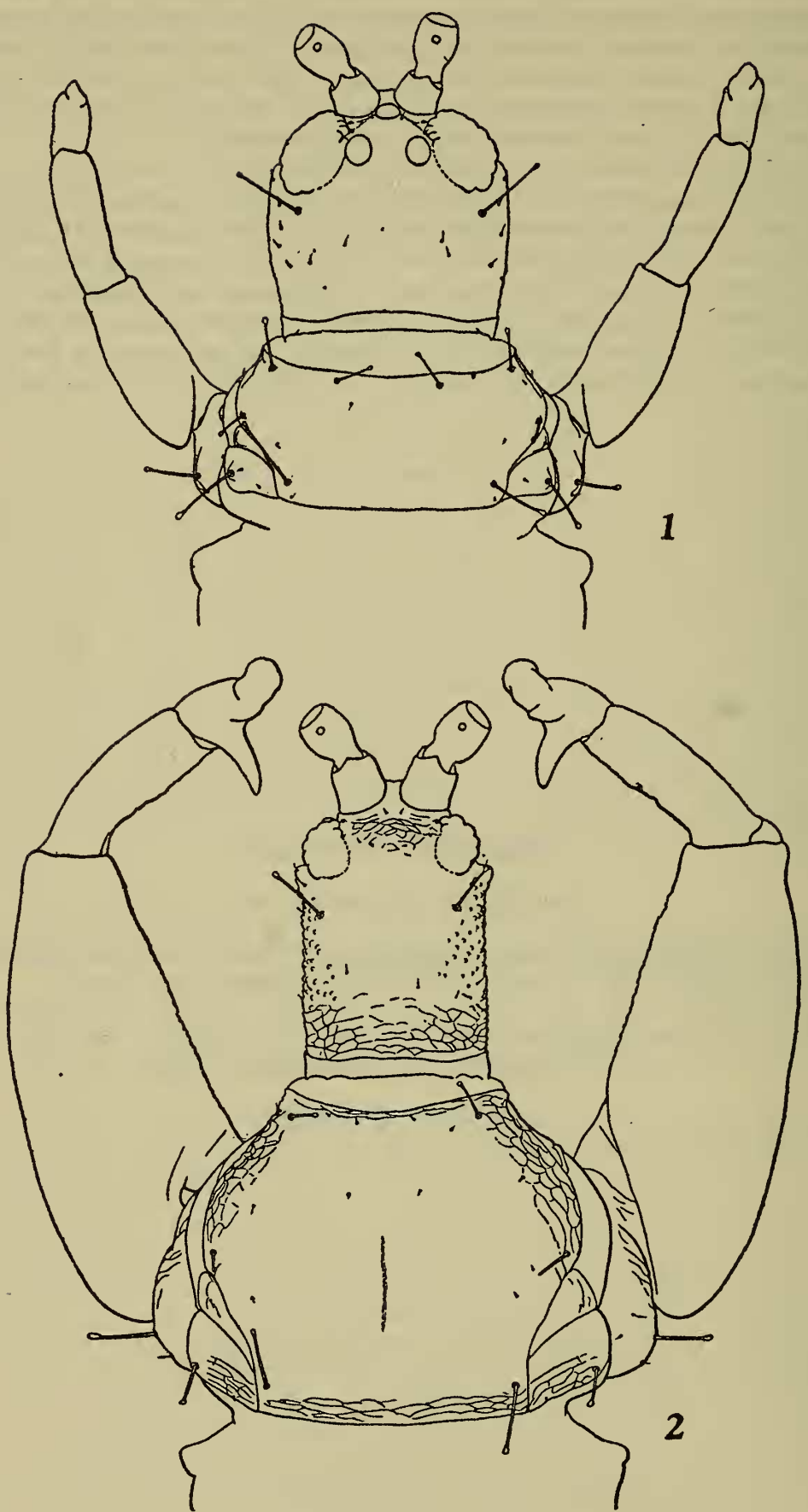
[Explanation of figures.]

Hoplothrips bradleyi sp. nov.

Fig. 1. Head and prothorax of macropterous female, holotype; sculpture not shown; all setæ omitted from antennæ and legs.

Fig. 2. Head and prothorax of apterous male, allotype; all setæ and sculpture omitted from antennæ and legs.

[J.D.H., camera lucida.]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